

**COURSE OVERVIEW DE0187**  
**Directional, Horizontal and Multilateral Drilling**

**Course Title**

Directional, Horizontal and Multilateral Drilling

**Course Date/Venue**

Session 1: May 18-22, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar

Session 2: October 12-16, 2025/Meeting Plus 8, City Centre Rotana Doha Hotel, Doha, Qatar



**Course Reference**

DE0187

**Course Duration/Credits**

Five days/3.0 CEUs/30 PDHs

**Course Description**



***This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.***



This course is designed to provide participants with a detailed and up-to-date overview of directional, horizontal and multilateral drilling. It covers the horizontal and multilateral well technology; the horizontal and multilateral well design and the applications for directional drilling; the directional profiles and extended reach wells; the directional measurement, surveying, survey calculations and accuracy; the dogleg severity calculations and planning directional and horizontal wells; the horizontal drilling methods and applications; and kicking off the well, drilling the tangent section, dropping hole angle, logging high angle wells and hole cleaning.



During this interactive course, participants will learn the well control in horizontal wells and multi-laterals; the various types of survey instruments and the tools used to deflect a wellbore; the torque and drag calculations; the drilling fluids, turbodrills and measurement while drilling (MWD); the formation evaluation, kick detection and response; the general considerations for BOP equipment, cementing and drilling problems in horizontal and multilateral wells; the control over borehole trajectory and tools used to deflect a wellbore; freeing stuck pipe, baking-off the drill string, fishing and milling; the sidetracking and lost circulation; the productivity of horizontal and multilateral wells; and the influence of well eccentricity and formation damage.

## **Course Objectives**

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain a comprehensive knowledge on directional, horizontal and multilateral drilling
- Make survey calculations as well as interpret TVD, polar and rectangular coordinates and vertical section including dogleg severity and the problems associated with it
- Plan a two-dimensional directional well including the horizontal wells based on the objectives of the well
- Determine the best multi-lateral completion for an application and the declination and non-magnetic drilling collar selection
- Apply the best survey instrument for the job and determine directionally drill with rotary BHAs, jetting, whipstocks, motor, steerable motors and rotary steerable systems
- Discuss drill horizontally underbalanced and interpret torque and drag
- Determine what factors will affect the torque and drag as well as cementing requirements for directional wells
- Discuss the horizontal and multilateral well technology including the horizontal, multilateral wells and reservoir concerns
- Illustrate horizontal and multilateral well design and the applications for directional drilling
- Recognize directional profiles and extended reach wells as well as apply directional measurement, surveying, survey calculations and accuracy
- Employ dogleg severity calculations, planning directional and horizontal wells and horizontal drilling methods and applications
- Describe kicking off the well, drilling the tangent section, dropping hole angle, logging high angle wells and hole cleaning
- Illustrate well control in horizontal wells and multi-laterals
- Identify the various types of survey instruments and the tools used to deflect a wellbore
- Carryout torque and drag calculations and discuss drilling fluids, turbodrills and measurement while drilling (MWD)
- Illustrate formation evaluation, kick detection and response and well killing in horizontal wells
- Determine general considerations for BOP equipment, cementing, drilling problems in horizontal and multilateral wells, control over borehole trajectory and tools used to deflect a wellbore
- Describe freeing stuck pipe, baking-off the drill string, fishing and milling
- Discuss the sidetracking and lost circulation as well as productivity of horizontal and multilateral wells
- Recognize the influence of well eccentricity and formation damage

### **Exclusive Smart Training Kit - H-STK®**



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes electronic version of the course materials conveniently saved in a Tablet PC.

### **Who Should Attend**

This course provides an overview of all significant aspects and considerations of directional, horizontal and multilateral drilling for drilling engineers, reservoir engineers, geologists, production and completion engineers and supervisors.

### **Training Methodology**

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

### **Accommodation**

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

### **Course Fee**


**US\$ 8,500** per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

**Course Certificate(s)**

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

**Certificate Accreditations**

Certificates are accredited by the following international accreditation organizations:


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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology’s courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant’s involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant’s CEU and PDH Transcript of Records upon request.

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

### Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



**Mr. Hossam Mansour** is a **Senior Drilling & Petroleum Engineer** with almost **25 years** of **Offshore & Onshore** experience within the **Refinery, Petroleum** and **Oil & Gas** industries. His expertise covers the areas of **Drill-String** Design, Failure Prevention & Optimization, Advanced **Drilling** Practices, **Horizontal & Directional Drilling** (Planning, Techniques & Procedures), **Horizontal & Multilateral Drilling, Directional & Horizontal Drilling** Techniques & Procedures, **Directional Drilling, Horizontal & Multilateral Drilling**, Advanced

**Drilling** Technology, **Drilling & Workover** Operations, **Offshore Drilling & Testing, Drilling & Completion Fluids**, Extended Reach Drilling (ERD), **Cementing** Operations, **Cementing** Equipment, **Cement Slurry Volumes, Casing, Directional & Horizontal Well** (Planning, Techniques & Procedures), **Horizontal & Multilateral Wells, Horizontal Well** Control, **Horizontal & Multilateral Wells** (Analysis & Design), **Directional, Horizontal Well** Performance & Optimization, Geological & Engineering Aspects of **Horizontal Wells, Sucker Rod Pumping** System, **SRP** Maintenance, **Rod Pumping** Optimization, **Rod Lift** Method, **Beam Pump, Well Production Control & Management, Rigging, Tubular Handling, HPHT, Well Stimulation, Well Cleaning, Well Testing Analysis & Design, Well Control, Well Reconciliation, Drilling Water Wells Design & Operations, Coiled Tubing Perforating Operations, Gas Lift Operations, ESP Design & Operation, Tubing, Well Heads, Drill Stem Test (DST) Operations, Offshore Drilling and Drill String.** Further, he is also a well-versed in **Workover Rigs, Open & Cased Hole Logging, Wire Line Perforations, FRAC Design & Operations, Log Interpretation, Stuck Pipe Prevention, Fishing Operations, Tools & BHA Design and Rig & Rigless Completion Operations.** He is currently the **Operations General Manager** of **IPR Energy Group-International Oilfield Services**, where-in he is managing, planning, directing and coordinating the operations of companies and responsible for formulating policies, managing daily operations and planning the use of materials.

During his career life, Mr. Mansour held significant positions such as the **Operations General Manager, Drilling Engineering Manager, Drilling Superintendent, Drilling & Workover Superintendent, Senior Drilling Supervisor, Drilling & Workover Supervisor, Night Drilling Supervisor, Land Rig Drilling Supervisor, Senior Drilling Engineer, Senior Drilling Consultant, Trainer/Instructor** and **Cement Operator** for numerous international companies like the **Saudi ARAMCO, PetroSannan-JV NaftoGaz, PetroShahd, ENAP Sipetrol, NAFTOGAZ, Romanna, Apache, Khalda Petroleum Company, RWE Dea AG Co., SUCO (Suez Oil Company)** and **Halliburton.**

Mr. Mansour has a **Bachelor's** degree in **Petroleum Engineering** with the major in **Drilling, Production & Reservoir.** Further, he is a **Certified Instructor/Trainer** and a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management (ILM).** Moreover, he is a member of the **Society of Petroleum Engineers (SPE)** and has delivered innumerable technical courses, related sciences and studies, seminars, workshops and conferences worldwide.

### **Course Program**

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

#### **Day 1**

0730 – 0800	<i>Registration and Coffee</i>
0800 – 0815	<i>Welcome &amp; Introduction</i>
0815 – 0830	<b>PRE-TEST</b>
0830 – 0900	<b><i>Overview of Horizontal &amp; Multilateral Well Technology</i></b>
0900 – 0930	<b><i>Horizontal &amp; Multilateral Wells &amp; Reservoir Concerns</i></b>
0930 – 0945	<i>Break</i>
0945 – 1030	<b><i>Horizontal &amp; Multilateral Well Design</i></b>
1030 – 1100	<b><i>Applications for Directional Drilling</i></b>
1100 – 1215	<b><i>Directional Profiles</i></b>
1215 – 1230	<i>Break</i>
1230 – 1300	<b><i>Extended Reach Wells</i></b>
1300 – 1330	<b><i>Directional Measurement &amp; Surveying</i></b>
1330 – 1420	<b><i>Survey Calculations &amp; Accuracy</i></b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day One</i>

#### **Day 2**

0730 – 0845	<b><i>Dogleg Severity Calculations &amp; Problems Associated with</i></b>
0845 – 0915	<b><i>Planning Directional &amp; Horizontal Wells</i></b>
0915 – 0930	<i>Break</i>
0930 – 1030	<b><i>Horizontal Drilling Methods &amp; Applications</i></b>
1030 – 1100	<b><i>Kicking Off the Well</i></b>
1100 – 1215	<b><i>Drilling the Tangent Section</i></b>
1215 – 1230	<i>Break</i>
1230 – 1300	<b><i>Dropping Hole Angle</i></b>
1300 – 1330	<b><i>Logging High Angle Wells</i></b>
1330 – 1420	<b><i>Holecleaning</i></b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Two</i>

#### **Day 3**

0730 – 0845	<b><i>Well Control in Horizontal Wells</i></b>
0845 – 0915	<b><i>Multi-laterals</i></b>
0915 – 0930	<i>Break</i>
0930 – 1030	<b><i>Types of Survey Instruments</i></b>
1030 – 1100	<b><i>Tools Used to Deflect a Wellbore</i></b>
1100 – 1215	<b><i>Torque &amp; Drag Calculations</i></b>
1215 – 1230	<i>Break</i>
1230 – 1300	<b><i>Drilling Fluids</i></b>
1300 – 1330	<b><i>Turbodrills</i></b>
1330 – 1420	<b><i>Measurement While Drilling (MWD)</i></b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Three</i>

#### **Day 4**

0730 – 0845	<b>Formation Evaluation</b>
0845 – 0915	<b>Kick Detection &amp; Response</b>
0915 – 0930	<i>Break</i>
0930 – 1030	<b>Well Killing in Horizontal Wells</b>
1030 – 1100	<b>General Considerations for BOP Equipment</b>
1100 – 1215	<b>Cementing</b>
1215 – 1230	<i>Break</i>
1230 – 1300	<b>Drilling Problems in Horizontal &amp; Multilateral Wells</b>
1300 – 1330	<b>Control Over Borehole Trajectory</b>
1330 – 1420	<b>Tools Used to Deflect a Wellbore</b>
1420 – 1430	<b>Recap</b>
1430	<i>Lunch &amp; End of Day Four</i>

**Day 5**

0730 – 0845	<b>Freeing Stuck Pipe</b>
0845 – 0915	<b>Baking-off the Drill String</b>
0915 – 0930	<i>Break</i>
0930 – 1030	<b>Fishing &amp; Milling</b>
1030 – 1100	<b>Sidetracking &amp; Lost Circulation</b>
1100 – 1140	<b>Productivity of Horizontal &amp; Multilateral Wells</b>
1215 – 1230	<i>Break</i>
1230 – 1300	<b>Influence of Well Eccentricity</b>
1300 – 1345	<b>Formation Damage</b>
1345 – 1400	<b>Course Conclusion</b>
1400 – 1415	<b>POST-TEST</b>
1415 – 1430	<i>Presentation of Course Certificates</i>
1430	<i>Lunch &amp; End of Course</i>

**Practical Sessions**

This practical and highly-interactive course includes real-life case studies and exercises:-



**Course Coordinator**

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